

COMMENT

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REBUTTAL (=ERRATA): GRADING THE MAKING OF A BOOK REVIEW

A recent review (Pakaluk, 1988) of Liebherr (1986) criticizes two aspects of that study. I hereby respond to the reviewer's contentions, as they are based on errors of interpretation, fact, and judgment.

The reviewer cites the subject of the major portion of the above monograph, the *Agonum extensicolle* group, as paraphyletic, and thus uninformative for phylogenetic and biogeographic analysis. He bases this statement on the cladistic analysis of the tribe Platynini based on 43 exemplar North American taxa that opens the study. The reviewer states, "This analysis is useful for understanding the placement of the *Agonum extensicolle* group and finding appropriate outgroup taxa (Pakaluk, 1988, p. 127)." This was not my rationale for conducting this analysis, as the entire chapter is devoted to conducting the first cladistic analysis of the Platynini, and comparing the results to earlier classifications (Jeannel, 1942; Lindroth, 1956; Habu, 1978). Species groups and genera are placed in the cladistic analysis, but I make no attempt to define monophyletic groups on a fine scale based on a study largely drawn from a regional fauna using exemplar taxa. As I stated, "The use of exemplars brings the associated risk that the ranges of character states are inadequately represented (Liebherr, 1988, p. 5)." Also, "The affinities among European and American species implies [*sic*] that a regional analysis will be unsatisfactory for determination of phylogenetic relationships within this group. Only a worldwide perspective will produce a stable classification (p. 26)."

The classification presented in Appendix 2 of the monograph is intended as a step toward defining groups with European and American species held in common. To this end, the genera recognized are based on type species of commonly misused platynine generic names. That the genera *Anchomenus*, *Platynus*, and *Agonum* each have basically different female reproductive tracts provides the means to place species of the world fauna as members of each of these lineages using derived states of the female tracts. As these names have been synonymized in nearly every possible combination over classificatory history (Habu, 1973), this advance is of some importance to carabid systematics. As a side note, the variation in the female reproductive tract within Platynini is substantial, and will become the major means of delimiting natural groups within the tribe. The species groups recognized within *Agonum* in Appendix 2 are modified from those of Lindroth (1966), with any changes from that classification based on the distribution of shared-derived character states.

In answer to the reviewer's contention that the *A. extensicolle* group is not defined monophyletically, the species group diagnosis is cited. The group is diagnosed using

4 derived character states; metallic coloration, mesocoxal setation, number of dorsal elytral setae, and antennal setation (Liebherr, 1986, pp. 25, 85). The first was not used in the tribal cladistic analysis as it is generally variable across the tribe, and appears to be positively correlated with life in fully insolated habitats. Thus diagnosed, the group is revised, and within-group phylogenetic relationships and biogeographic patterns are analyzed.

An indication of how I view the relationship of the tribal cladistic analysis to the within-*extensicolle* group cladistic analysis can be obtained by reading the rules of out-group analysis for the latter. To determine primitive states for the *A. extensicolle* group analysis, I used "Other species of *Agonum* and *Platynus*, as well as members of other tribes of Carabidae . . . (Liebherr, 1986, p. 144)." I did not specifically use *A. quadrimaculatum*, or any other single group within *Agonum* as the outgroup, as I have little confidence that the phyletic structure present in the exemplar analysis is stable for species-group relationships.

I believe the reviewer's dismay at my preliminary cladistic analysis lies in what can be called the pitfall of literal translation. Cladistic analyses of older more diverse groups are likely to lack some portion of the extant taxa, due either to the large number of taxa, or incomplete knowledge of the world fauna. If this fact is explicitly admitted, the cladogram scheme should not be considered grounds for making nomenclatural and classificatory changes beyond those judged reasonable by the reviser. We should not assume a cladogram to specify a classification unless specifically advised to do so. More importantly, we should not wait to do cladistic analysis until we believe all extant species in a monophyletic group can be included.

A second criticism I wish to respond to is the reviewer's rejection of Plio-Pleistocene speciation in the *A. extensicolle* group. He apparently bases his stance on Coope's (1979) statement, "modern work on fossil Coleoptera [has] found no evidence of morphological change during the latter part of the Quaternary, nor [is] there reason to believe that many species became extinct during this period (p. 249)." That species represented in northern latitudes in Quaternary time are extant today says nothing about the species not represented in the fossil record. Moreover, my citation of speciation timing in the *A. extensicolle* group involves diversification since the late Miocene to mid-Pliocene, the latest divergence event timed from 160,000–2,400,000 years ago. As another example of Pleistocene speciation in Carabidae, one can cite the Hawaiian platynine fauna of more than 111 species (Zimmerman, 1948), which occurs on islands ranging from less than one million years to 6.4 million years of age (Kaneshiro, 1983). Admittedly, much diversification could have occurred on older islands now submerged to the northwest of the present islands, but the 12 species endemic to Hawaii (Sharp, 1903) can be no older than the age of that island, at most one million years.

The reviewer also asks where platynine species listed in Matthews (1979) would fit in the cladistic analysis. The species listed are *Agonum bicolor*, *A. consimile*, and *Platynus cincticollis*. A rough idea of their placement can be obtained by inspection of the classification presented in Appendix 2 of Liebherr (1986) in light of the cladogram of figure 10 (p. 22). The late-Miocene dating of species cited by Matthews (1979) is uninformative with regard to timing of divergence events within the *A. extensicolle* group.—James K. Liebherr, Department of Entomology, Comstock Hall, Cornell University, Ithaca, New York 14853-0999.

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